

SAP Compatibility for the Samsung ML-4050N Printer



Introduction

This white paper describes the testing methods used to verify the compatibility of the Samsung ML-4050N printer with SAP.

SAP is at the heart of most enterprise operations, and these operations want to print with confidence. Samsung has enlisted the help of Wipro Technologies to verify the compatibility of the ML-4050N for use with SAP.

The Samsung ML-4050N

The ML-4050N design targets small and medium size business and has the following specifications:

Features:

- 64 MB of memory
- 40 pages per minute (ppm) print speed
- 500 sheet paper tray
- USB and Network interface
- 1200 X 1200 dpi print resolution.

Firmware Specifications:

- Main Firmware Version - OS 1.01.01.23_SIEL01_R1T
- Network Firmware Version - V4.01.09 (KESTRAL)
- Engine Firmware Version - 1.00.19
- PCL5E Version - PCL5e 5.62 07-24-2007
- PCL6 Version - PCL6 5.49 06-22-2007
- PostScript Version - PS3 V1.62.76 06-12-2007
- PDF Version - PDF V1.00.43 08 -01-2007
- EPSON Version - IBM/EPSON 5.16 04-06-2007
- PCL 6 Driver Version - 3.04.54+:50
- PS Driver Version - 1.22.

Printer Drivers Tested

The printer drivers tested include the following:

- Samsung ML-4050 Series PCL6 5.49
- Samsung ML-4050 Series PS V1.62.76.

Test Environment

The testing lab used the following SAP environment to test the ML-4050N performance.

SAP Version:

- SAP IDES ECC 5.0
- SAP GUI Client 6.20.

SAP Hardware:

- Server 32-Bit: Intel Xeon 3040 1.86Ghz processor – Dual, 2 GB RAM, 250GB hard drive
- Client 64-Bit: AMD Athlon 4400+ processor, 1 GB RAM, 80GB hard drive
- Client 32-Bit: Intel Core duo 1.6Ghz processor, 1 GB RAM, 80GB hard drive.

SAP Software:

- Windows 2003 Server, 32-bit OS with Terminal Services, IIS and IMA services.
- Clients – Windows XP / 2000 / Vista
- Microsoft.Net Framework 2. 0
- Oracle 10G Release 1
- J2SE Runtime Environment 5.0 Update 9
- Microsoft Visual J# 2.0 Redistributable Package
- Windows Installer 3.1.

Test Results

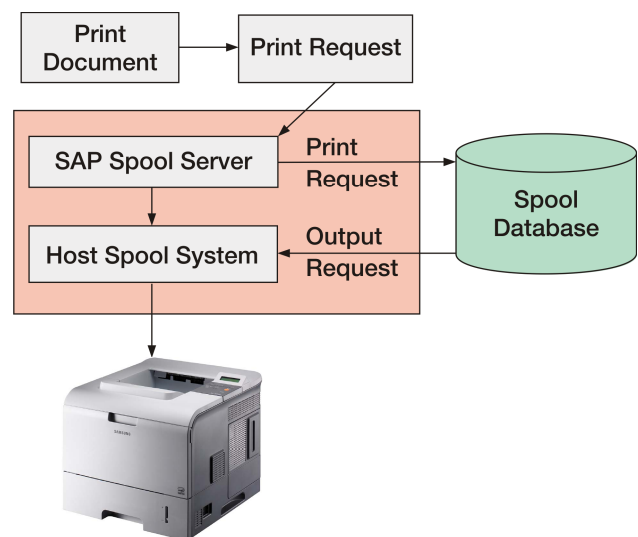
The lab tested the Samsung ML-4050N printer in a SAP environment using the SAP printing features. They tested both the PCL and PS drivers using Windows.

The following table lists the test results for these tests.

Functionality	Windows 2000 32 Bit	Windows XP 32 Bit	Windows Vista 64 Bit
Basic Driver Feature	Pass	Pass	Pass
Importing Device	Pass	Pass	Pass
Copying Device Type	Pass	Pass	Pass
Creating Output Device	Pass	Pass	Pass
Flexibility and Printer Handling	Pass	Pass	Pass
Host Spool Access Method	Pass	Pass	Pass
Load Performance	Not Performed	Pass	Pass

SAP Printing Overview

SAP prints documents and lists either locally from the operating system, or remotely from an Output Switch. The access method set during the printer device definition of the printer determines the type of printer connection used.



In SAP, the spool system controls the output of data to peripheral devices.

SAP creates a spool job to print a report or any other type of document. The spool job contains all of the information that is necessary to print an SAP document. An output job contains information about the chosen Output Device, the format type (portrait, landscape, duplex, simplex etc), and the resolution. The output job and the output data are unknown to the spool job. The data is stored separately from the required output information in the TemSe (temporary sequential objects) database. The Spool Work Process delivers the spool jobs. When created, a spool job activates the Spool Work Process and delivers the print job according to the access method settings.

The SAP Spool System performs the following spool request and print request tasks:

- Storing the spool requests
- Generating the Output/Print requests for printers
- Formatting data for the output devices.

Device Type

The Device Type stores the information needed to generate the device-specific, output-ready data stream. SAP uses device definitions to define a printer. The Device Type is modifiable at any time.

Printer Driver

Both the SAP Server and the SAP Client received an installation of the ML-4050N printer driver.

Test Scenarios

The tests included several test scenarios designed to verify the compatibility of the Samsung ML-4050N with SAP. The test scenarios include the following:

- Importing a Device Type
- Creating an Output Device
- Copying a Device Type
- Using Basic Driver Features
- Handling Print Jobs
- Using Spool Access Methods
- Loading
- Using PJI Commands

Importing a Device Type

Description

To use a device with SAP you must import the Device Type file to the SAP environment. SAP uses PRI files as the Device Type files for Printers. The Device Type also includes a list of supported formats for initializing the printer. Printer initialization defines the device specific features for SAP.

Test Methodology

The Samsung PRI file import used a SE38 transaction.

Observation

Importing the Device Type file for the Samsung ML-4050N printer to the SAP environment succeeded without any issues.

Creating an Output Device

Description

SAP uses the term Output Device to describe the destination for a print job. You must create an Output Device in SAP and map it to the imported printer Device Type. The Output Device settings allow you to specify the available printing features to SAP.

Test Methodology

The lab used an SAP Client to log on to a session with the SAP Server. They imported the Samsung PRI file using a SE38 transaction. Then they mapped the Output Device to the Samsung PRI file.

Observation

The lab successfully created the Output Device for the Samsung Device Type without any issues.

Copying a Device Type

Description

The Copy feature allows you to copy a device file (PRI) and customize the new copy as needed without changing the original device file.

Test Methodology

The lab used an SAP Client to log on to a session with the SAP Server. They copied the Samsung PRI file to another device file using a SE38 transaction.

Observation

The lab successfully copied the Device Type where it was visible in the Output Device Type window and no issues occurred during this test.

Using Basic Driver Features

Description

The printer driver contains the information used by SAP to define the printer features. The lab tested the Samsung printer driver performance for the following:

- Number of copies
- Orientation
- Paper size
- Duplex printing.

This test determines whether the settings in SAP result in the desired output by the Samsung printer.

Test Methodology

The lab configured the printer for different combinations of Number of copies, Orientation, different paper sizes and Duplex printing in the SAP Output Device tab. The lab imported the Samsung PRI file and mapped an Output Device to the imported PRI. They printed an SAP report using the mapped Output Device.

Observation

The features selected in the Device Type settings resulted in the expected print copy. The built-in SAP Reports 'Sap Script test for Portrait Format' and 'Sap Script Verification Symbols' successfully printed in the both the Portrait and DIN A4 formats.

Handling Print Jobs

Description

Printer flexibility is the ability of a printer to verifying the print job when any of the following occur:

- Network failures
- Mode changes while printing
- Interruption in paper tray settings during printing
- Empty active paper tray.

Test Methodology

The lab logged an SAP Client on to a session with the SAP Server. They sent an SAP report print job to the Samsung printer for printing and then interrupted the printing and verified the printer response for these unexpected interruptions. They emptied the printer's active tray and then inserted paper in Tray2 and verified that the print job continued correctly.

Observation

The Samsung ML-4050N printer suspends printing when an interruption occurs. Once the interruption is cleared the printing resumes in 8 seconds. The interruptions performed by the lab included taking the printer offline while printing, disconnecting the printer from the network and unplugging the USB cable.

Using Spool Access Methods

Description

The SAP system can only address an Output Device when it is configured using a device definition. This definition includes a setting for the Output Device access method. The possible SAP system access methods are local printing or remote printing. These access methods are identified to SAP by using a letter in the definition, which informs the system about the architecture in use and the operating system to use. The access method tells the SAP System how it should transfer the spool process data for this Output Device to the Host Spool System.

Test Methodology

The lab logged an SAP Client on to a session with the SAP Server. They created a Samsung PRI file device definition with the host spool access method set to emulate printing from the following:

- Front-end computer
- Device pool
- Operating system call.

Observation

There were no issues found during the testing of these Spool Access methods. The print jobs sent using different spool access methods worked as expected with the Samsung ML-4050N printer.

Loading

Description

Printing large print jobs can cause problems for some printers. The lab tested the Samsung ML-4050N printer behavior during high loads, and verified how it responds in an SAP environment.

Test Methodology

The lab logged an SAP Client on to a session with the SAP Server. They sent the following loads to the printer through the SAP environment:

- 100 copies of an SAP report
- Over 100 copies of an SAP report
- A print job that lasted for one hour.

Observation

The Samsung ML-4050N printer printed on average 40 letter pages in 1 minute as per specifications. The prints did not show any smudging or fuzzy edges. The printer printed the SAP reports for one hour without any interruption and the quality of the printing was good.

Using PjL Commands

Description

PjL commands are printer settings that you can modify as needed in the Device Type file. When you make changes to these PjL commands, the changes will display in the printer output. You can enable or disable the PjL commands that a device file supports for configuring different settings.

Test Methodology

The lab logged an SAP Client on to a session with the SAP Server. They created a Device Type and Output Device for Samsung in the SAP Client. They selected the ZMINDEF format provided by Samsung, and from the Printer Initialization window, they changed the Resolution and the Duplex printing PjL commands and saved them. They printed the SAP report using the Samsung Output Device created and verified for the testing of the PjL command settings.

Observation

The Samsung ML-4050N printer did not accept the PLJ commands for changing the Resolution or the number of copies. This printer does not accept PjL commands to set the printer settings, when connected to an SAP Client machine through USB or TCP/IP.

About Samsung Electronics America, Information Technology Division

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